

amended. This cavefish is presently known from only 13 caves in 6 counties of the Springfield Plateau of southwest Missouri, northwest Arkansas, and northeast Oklahoma. This cavefish has apparently disappeared from over 40 percent of its historic locations. The causes of the decline appear to be habitat alteration and collectors. The Service was petitioned by Dr. A. V. Brown, University of Arkansas, to consider adding this fish to the List of Endangered and Threatened Wildlife based on his status survey of the species in Missouri. This proposal, if made final, would implement needed protection provided by the Endangered Species Act of 1973, as amended. The Service is requesting comments and data from the public on this proposal.

**DATES:** Comments from all interested parties must be received by April 2, 1984. Public hearings requests must be received by March 16, 1984.

**ADDRESSES:** Comments and materials concerning this proposal should be sent to the Endangered Species Field Station, U.S. Fish and Wildlife Service, Jackson Mall Office Center, Suite 3185, 300 Woodrow Wilson Avenue, Jackson, Mississippi 39213. Comments and materials received will be available for public inspection, by appointment, during normal business hours at the above address.

**FOR FURTHER INFORMATION CONTACT:** Mr. Dennis B. Jordan, Endangered Species Field Supervisor, U.S. Fish and Wildlife Service, Jackson Mall Office Center, Suite 3185, 300 Woodrow Wilson Avenue, Jackson, Mississippi 39213 (601/960-4900).

**SUPPLEMENTARY INFORMATION:**

**Background**

The Ozark cavefish was described by Dr. C. H. Eigenmann in 1898 as *Typhlichthys rosae*. Woods and Inger, in a treatment of the Amblyopsidae, placed the species in the genus *Amblyopsis* in 1957. The only other species in the genus *Amblyopsis* is the northern cavefish *Amblyopsis spelea*, which occurs in southern Indiana and west central Kentucky.

The Service received a petition to list the Ozark cavefish from Dr. A. V. Brown of the University of Arkansas on September 9, 1982. The species was included in the Service's Notice of Review of Vertebrate Wildlife in the Federal Register of December 30, 1982 (47 FR 58454), and the petition was subsequently accepted by a Notice of Findings on February 15, 1983 (48 FR 6752). The petition was based upon a survey of the Missouri portion of the Ozark cavefish range in which cavefish

were observed in only 4 of the over 20 caves where he expected to find it (Brown, 1982). Following acceptance of the petition, the Arkansas and Oklahoma range was surveyed by Service personnel and a biologist from the University of Arkansas.

The Ozark cavefish is a true troglitic cavefish reaching 50mm total length. It has an elongate, flattened head, body nearly devoid of pigment, and a projecting lower jaw. The dorsal and anal fins are located far back on the body, the caudal fin is rounded, and the pelvic fins are absent. The sensory papillae occur in 2 or 3 rows on the upper and lower half of the caudal fin (Poulson, 1961). It is the only cavefish within the Springfield Plateau of southwest Missouri, northwest Arkansas, and northeast Oklahoma. The literature records of the southern cavefish (*Typhlichthys subterraneus*) within the Ozark cavefish range have been determined to be erroneous (Mayden and Cross, in press; Jones, pers. com.). The Ozark cavefish historically occurred in at least nine counties with unconfirmed reports in five additional counties. There are reports of the Ozark cavefish occurring in 52 caves; however, only 23 historic localities are confirmed. Most of the range is in highly soluble limestones which are honeycombed by subsurface drainage in the Boone and Burlington formations.

The surveys included 17 counties with actual cave visits in 16 counties. The currently known populations occur in 13 caves in 6 counties. Although these include much of the historic range, the frequency of sightings of fish is decreasing. In only 8 of the 13 known populations could you expect to see any cavefish on a given visit. In only two populations could you expect to see more than five cavefish per visit. In one of three remaining populations in Oklahoma, the only two cavefish ever observed were collected with the most recent collection in 1982 (Black, pers. comm.). In the past, scientific collecting appears to have reduced some cavefish populations. In Greene County, Missouri, there are six historic sites where cavefish are no longer observed, and in the only current population there have been only two cavefish observations in 15 years. This decline may be due to degradation of subsurface or ground water as evidenced by high levels of nickel in some cave systems in Greene County where the species formerly occurred (Jones, pers. comm.).

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**50 CFR Part 17**

**Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for the Ozark Cavefish (*Amblyopsis rosae*)**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** The Service proposes to determine the Ozark cavefish (*Amblyopsis rosae*) to be a threatened species under the authority contained in the Endangered Species Act of 1973, as

### Summary of Factors Affecting the Species

Section 4(a)(1) of the Endangered Species Act (16 U.S.C. 1531 *et seq.*) and regulations promulgated to implement the listing provisions of the Act (codified at 50 CFR Part 424; under revision to accommodate 1982 amendments) set forth the procedures for adding species to the Federal lists. A species shall be determined to be an endangered or threatened species due to one or more of the five factors described in Section 4(a)(1) of the Act. These factors and their application to the Ozark cavefish, *Amblyopsis rosae*, are as follows:

A. *The present or threatened destruction, modification, or curtailment of its habitat or range.* The sinkholes found in the soluble limestone bedrocks in the Ozark cavefish range make this species especially susceptible to contamination. Development of the Greene County, Missouri, area has resulted in highly hazardous water contamination in this portion of Ozark cavefish range (Aley, 1982). The documentation of high levels of nickel in one cave system in Greene County supports this finding (Jones, pers. comm.). Pollution of cave stream systems in rural areas due to highway, railroad, and pipeline spills; landfills and dump discharges; human and animal waste disposal; and the use of toxic chemicals, is an ever present threat.

B. *Overutilization for commercial, recreational, scientific, or educational purposes.* The low reproductive abilities, confined habitat, and inability to elude captors make the Ozark cavefish very vulnerable to overutilization. Offers to purchase cavefish have appeared in various publications.

Pet stores often display blind cavefish for sale to aquarists. There are several documented instances of scientific collectors taking large numbers of Ozark cavefish. A scientific collection in the 1930's from one Arkansas cave may be responsible for reducing that population to a very low level, and in recent years only an occasional cavefish has been observed (Aley and Aley, 1979).

C. *Disease or predation.* Disease in Ozark cavefish has not been studied but it is reasonable to assume that they are susceptible to disease outbreaks, especially when the water quality deteriorates. Predation may pose a more significant threat. Raccoons and epigeal fishes are known to prey upon cavefish as are salamanders and cave crayfish. Raccoons are known to venture for great distances into caves feeding upon whatever they catch. There is one observation of a smallmouth bass

entering a cave for a distance of a half mile (Willis, pers. comm.). The use of cave water systems for trout hatcheries increases the density and probability of trout entering the cave and feeding upon cavefish.

D. *The inadequacy of existing regulatory mechanisms.* Current regulations protecting this cavefish are limited to the non-game regulations of the concerned States. These regulations require a permit for collecting fish species. Enforcement of the permit restrictions is very difficult and often non-existent. This can result in the taking of the species by individuals if they can gain entrance to a cave system inhabited by the Ozark cavefish.

E. *Other natural or manmade factors affecting its continued existence.* The energy source supporting the food supply in a cave is limited in diversity and quantity. The loss or diminution of this energy source affects the existence of the Ozark cavefish. The better populations of this cavefish occur in caves used by the endangered gray bat, *Myotis grisescens*, where bat guano is the primary energy source (Poulson, 1963). The decline of bat populations in caves where Ozark cavefish occur is probably followed by a decline in the cavefish population. The low reproductive capabilities and apparent small populations are natural limitations to the ability of this species to recover from any adversity.

### Critical Habitat

The Endangered Species Act, as amended, in Section 4(a)(3) requires that to the maximum extent prudent and determinable the Secretary must designate any habitat of the species which is considered to be critical habitat at the time the species is determined to be endangered or threatened. The Service finds that designation of critical habitat is not prudent for the Ozark cavefish at this time.

The Ozark cavefish is a unique rare cavefish that is highly adapted to the cave environment. As such, it is sought by scientific and recreational collectors. Publication of the exact location of cavefish populations could lead to collection of this easily captured cavefish. Due to the small populations and very low reproductive capability of this species, the removal of any individuals from the population could be detrimental to the species' survival. Because there is a threat from exploitation if the location of caves supporting populations of this species are disclosed, critical habitat is not being determined for the Ozark cavefish.

### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Endangered Species Act include recognition, recovery actions, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing encourages and results in conservation actions by Federal, State, and private agencies, groups, and individuals. The Endangered Species Act provides for land acquisition and cooperation with the States and requires that recovery actions be carried out for all listed species; such recovery actions are initiated by the Service following listing. The protection which will be offered to the Ozark cavefish once it is listed is discussed below.

The Act and its implementing regulations in §§ 17.21 and 17.31 of 50 CFR set forth a series of general prohibitions and exceptions which apply to all threatened wildlife. With respect to the Ozark cavefish, all prohibitions of Section 9(a)(1) of the Act, as implemented by § 17.31, would apply. These prohibitions, in part, would make it illegal for any person subject to the jurisdiction of the United States to take, import or export, ship in interstate commerce in the course of a commercial activity, or sell or offer for sale this species in interstate or foreign commerce. It would also be illegal to possess, sell, deliver, carry, transport, or ship any such wildlife which was illegally taken. Certain exceptions would apply to agents of the Service and State conservation agencies. The Act provides for the issuance of permits to carry out otherwise prohibited activities involving threatened species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.32.

Section 7(a) of the Act, as amended, requires Federal agencies to evaluate their actions with respect to any species which is proposed or listed as endangered or threatened. Regulations implementing this provision of the Act are codified at 50 CFR Part 402 and are now under revision (see proposed rule at 48 FR 29989; June 29, 1983). Agencies are required under Section 7(a)(4) to confer informally with the Service on any action that is likely to jeopardize the continued existence of a proposed species. If the species is subsequently listed, Section 7(a)(2) would require Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of the Ozark cavefish.

## Public Comments Solicited

The Service intends that any final rule adopted will be as accurate and as effective as possible in the conservation of any endangered or threatened species. Therefore, any comments or suggestions from the public, other concerned governmental agencies, the scientific community, industry, private interests, or any other interested party concerning any aspect of this proposed rule are hereby solicited. Comments particularly are sought concerning:

1. Biological, commercial trade, or other relevant data concerning any threat (or the lack thereof) to the Ozark cavefish;

2. The location of any populations of the Ozark cavefish, and the reasons why any habitat of this species should or should not be determined to be critical habitat as provided by Section 4 of the Act;

3. Additional information concerning the range and distribution of this species; and

4. Current or planned activities in the range of the fish and the possible impact of such activities on the Ozark cavefish.

Final promulgation of the regulation on the Ozark cavefish will take into consideration the comments and any additional information received by the Service, and such communications may lead to adoption of a final regulation that differs from this proposal.

The Endangered Species Act provides for a public hearing on this proposal, if requested. Requests must be filed within 45 days of the date of the proposal. Such requests should be made in writing to the Endangered Species Field Supervisor, U.S. Fish and Wildlife Service, Jackson Mall Office Center, Suite 3185, 300 Woodrow Wilson Avenue, Jackson, Mississippi 39213 (601/960-4900).

## National Environmental Policy Act

In accordance with a recommendation from the Council on Environmental Quality (CEQ), the Service has not prepared any NEPA documentation for this proposed rule. The recommendation from CEQ was based, in part, upon a decision in the Sixth Circuit Court of Appeals [*PLF v. Andrus* 657 F.2d 829 (6th Cir. 1981)] which held that the preparation of NEPA documentation

was not required as a matter of law for Section 4(a) actions under the Endangered Species Act.

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## Author

The primary author of this proposed rule is Mr. James H. Stewart, U.S. Fish and Wildlife Service, Jackson Mall Office Center, Suite 3185, 300 Woodrow Wilson Avenue, Jackson, Mississippi 39213.

## List of Subjects in 50 CFR Part 17

Endangered and threatened wildlife, Fish, Marine mammals, Plants (agriculture).

## Proposed Regulation Promulgation

## PART 17—[AMENDED]

Accordingly, it is hereby proposed to amend Part 17, Subchapter B of Chapter I, Title 50 of the U.S. Code of Federal Regulations, as set forth below:

1. The authority citation for Part 17 reads as follows:

Authority: Pub. L. 93-205, 87 Stat. 884; Pub. L. 94-359, 90 Stat. 911; Pub. L. 95-632, 92 Stat. 3751; Pub. L. 96-159, 93 Stat. 1225; Pub. L. 97-304, 96 Stat. 1411 (16 U.S.C. 1531 *et seq.*).

2. It is proposed to amend Section 17.11(h) by adding, in alphabetical order, the following to the List of Endangered and Threatened Wildlife under "Fishes":

## § 17.11 Endangered and threatened wildlife.

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(h) \* \* \*

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Fishes							
Cavefish, Ozark	<i>Amblyopsis rosae</i>	U.S.A. (MO, OK, AR)	Entire	T		NA	NA

Dated: January 5, 1984.

G. Ray Arnett,

Assistant Secretary for Fish and Wildlife and Parks.

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